Ivermectin for Treatment of Pentastomids in the Standing's Day Gecko, *Phelsuma standingi*

Pentastomid ova were detected by flotation of fecals collected during the quarantine of 2.2 adult Standing's geckoes, *Phelsuma standingi*. The finding of pentastomid ova was unexpected as these geckoes had been captive-bred at another zoo and raised on a diet using domestic insect sources and fruit baby food. A review of their history revealed that some of the specimens had escaped and lived free in the other zoos' facility for period of several weeks to months before being recaptured. Pentastomes were likely acquired by ingestion of various pest insects, such as cockroaches, during the escaped period. All four geckoes appeared healthy on physical exam and showed normal behavior. An adult female Tokay gecko, *Gekko gecko*, ceased to shed pentastome ova three days following the single administration of Ivermectin (Ivomec® 1% injection, Merck Ag Vet, Rahway, NJ) at a dose of 1 mg/kg orally and remained clear of pentastome ova during weekly fecal examinations for a period of ten months (Micinolio, 1996).

However, since this lizard was not necropsied it is unknown if the ivermectin eliminated the pentastomes or simply interrupted their ova production and oviposition. Due to the possible risk of ivermectin toxicity, one female Standing's day gecko was selected for initial treatment with ivermectin at the dosage of 1 mg/kg PO. No adverse effects were noted in this specimen, so the remaining 1.2 geckoes were treated at this same dosage. A second dose of ivermectin was administered to each gecko anywhere from 14 - 16 days after the initial dose. Seven days following the second treatment, fecal samples were collected for parasite examination no more often than every five days. Pentastome ova were not detected in the first three fecals examined, so the geckoes were released from quarantine. Since the Standing's Day gecko is a long-lived species, with captives frequently surviving in excess of ten years, it is unlikely that there will be verification by necropsy of presence or absence of living pentastomes in these specimens. Although elimination of the parasite is as yet disputable, this report documents the safety of ivermectin at this dosage in another species of lizard and another link between ivermectin administration (1 mg/kg PO, repeated in 14 - 16 days) and detection of pentastome ova in fecal samples. It also emphasizes that a single specimen should be selected when using a new dosage or a new drug in a species to evaluate the possibility of adverse effects before treating additional specimens in a similar manner.

Kevin Wright, VMD
Curator of Amphibians and Reptiles
Philadelphia Zoological Garden

References:

Micinolio J. 1996. Ivermectin for the treatment of pentastomids in a Tokay gecko, *Gekko gecko*. Bulletin ARAV, 6(2):5-6.

Successful Induction of Metamorphosis in a Banjo Frog, *Limnodynastes dumerilii*

On October 21, 1996 a banjo frog, *Limnodynastes dumerilii*, was presented, having failed to complete a successful metamorphosis. The frog was part of a group of tadpoles, of unknown age, obtained from a commercial breeder and held in a glass aquarium. Water quality parameters are unknown and are not measured routinely. The rest of the banjo frogs had completed metamorphosis by August 2, 1996 (nearly three months earlier). This frog weighed 2.8 gm, had well developed hind-limbs, no forelimbs and a tail. The frog was treated with 0.1 μg thyroxine (Oroxine, 100 μg tablets, Wellcome Australia Ltd., Cabarita, NSW) once orally (36 μg/kg). This was done by crushing one tablet and dissolving it in 10 ml tap water, producing a 10 μg/ml solution. The frog was then administered orally 0.01 ml of this solution.

On October 27, 1996 the frog had developed forelimbs and by October 29, 1996 the tail had disappeared. This represents the normal sequence of events during metamorphosis. Metamorphosis is controlled by the hypothalamus, pituitary and thyroid (Raphael, 1993). The reason why the frog's development was arrested at the hind-limb stage is unclear, but the additional thyroxine appears to have stimulated the completion of metamorphosis.

There is no published thyroxine doses for amphibians. The dose used here was extrapolated directly from that used to treat dogs with hypothyroidism (20-40 μg/kg) (Ferguson, 1986). Due to the small size of the frog and presumed higher metabolic rate, a dose at the upper end of the therapeutic spectrum was selected. No untoward effects have been noticed and the frog remains clinically normal.

Peter Holz
Healesville Sanctuary
Healesville Victoria
Australia

References:

Ferguson DC. 1986. Thyroid hormone replacement therapy. *In* Kirk RW. (ed): Current Vet Therapy IX, Small Animal Practice, WB Saunders Co, Philadelphia, PA:1018-1025.

Raphael BL. 1993. Amphibians. Veterinary Clinics of North America: Small Animal Practice 23: 1271-1286.